

# 70 Finding the Lost Children



**D**NA testing is more time-consuming and expensive than blood typing; that's why the investigators of the lost children used blood typing first. But DNA fingerprints are so reliable and show so much about a person's genetic information that they provide very strong evidence in cases involving identification.

DNA fingerprinting is used to verify biological relatives, to identify bodies, and to figure out who was present at the scene of a crime. Special techniques have recently been developed to increase the DNA found in very tiny specimens: DNA can now be collected from microscopic specks of blood, fragments of old teeth, or even the root of a single hair!

Many scientists use DNA fingerprinting and similar techniques in their work. Anthropologists use it to study ancient remains such as Egyptian mummies. Biologists use DNA fingerprinting to compare the DNA of various living organisms in order to investigate evolutionary relationships. Paleontologists have even used the technique on dinosaur blood found in insects preserved in amber. (But dinosaur cloning is still far from being possible!)



**How can DNA fingerprinting help find the lost children?**



## MATERIALS

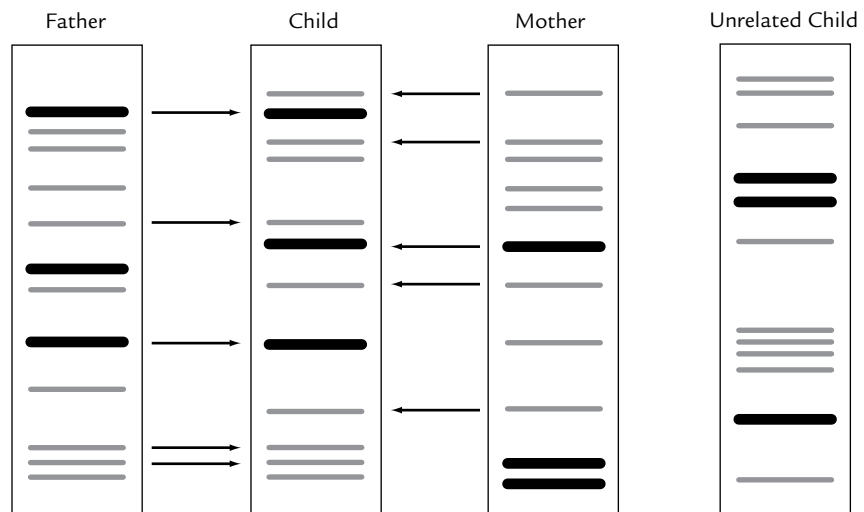


For each pair of students

- 1 Student Sheet 70.1, “Children’s DNA Fingerprints”
- 1 pair of scissors

## PROCEDURE

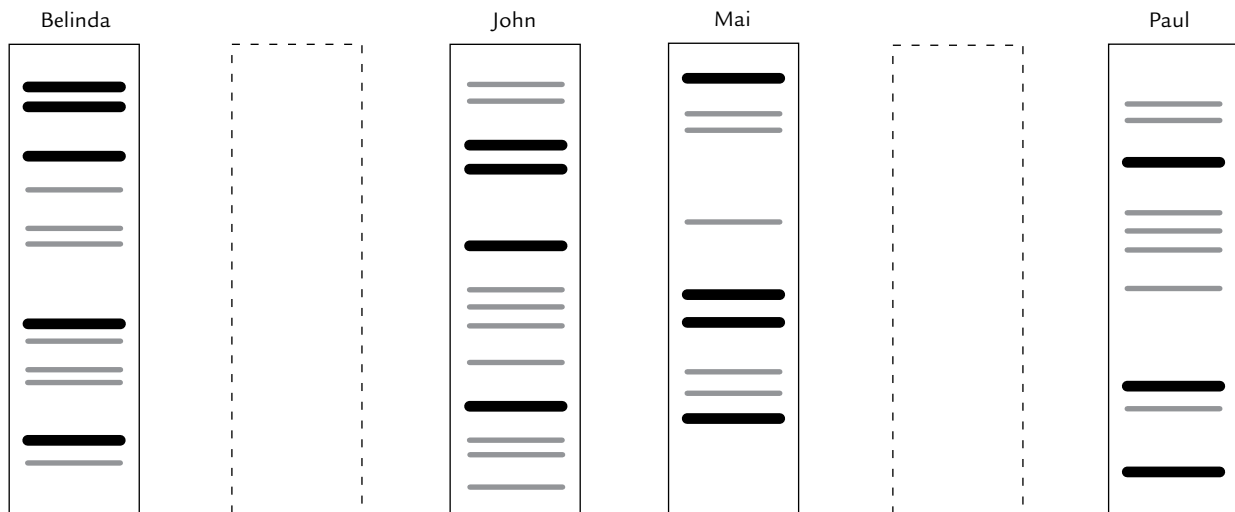
1. The figure below shows the DNA fingerprints of a child, his or her biological parents, and an unrelated child. Examine and compare the DNA fingerprints. Record your observations in your science notebook.



2. To try to identify their missing children, Mai, Paul, Belinda, and John each give blood and have their DNA fingerprints made. They obtain a court order to test the blood of the children in Samarra.

## Activity 70 • Finding the Lost Children

Student Sheet 70.1, “Children’s DNA Fingerprints,” has the DNA fingerprints for the eight children you considered in Activity 68, “Searching for the Lost Children.” Cut out the DNA fingerprints and compare them one by one to the parents’ DNA fingerprints, shown below. Be sure to include the label with the fingerprint (for example, “Girl 1”).



3. Record your observations and conclusions in your science notebook.

4. Luckily, Belinda remembers that she has a tooth that her daughter, Serena, lost when she was two years old. The root of the tooth is used to extract some DNA. Compare the daughter’s DNA fingerprint to the DNA fingerprints of the girls in Samarra. Record your observations.



*Serena's DNA fingerprint*

## ANALYSIS



1. Use DNA fingerprint evidence and the blood type evidence from Activity 68, “Searching for the Lost Children,” to explain each of the following:

- Which child or children are not likely to be those of Belinda and John?
- Which child or children are likely to be those of Belinda and John?
- Which child or children are not likely to be those of Mai and Paul?
- Which child or children are likely to be those of Mai and Paul?



2. Write a convincing statement about which of the eight children (if any) are the children of Belinda and John, and which of the children (if any) are the children of Mai and Paul. In your statement, provide as much evidence as you can to convince a judge that the biological children of these parents have been found. Be sure to include evidence from previous activities.